

REMARKS/ARGUMENTS

Introduction:

Claim 60 has been amended for clarification and not for reasons of patentability. Claims 61 and 62 have been amended for consistency with claim 60 and not for reasons of patentability. In addition, claim 72 has been added, but no claims have been canceled in this amendment. Claims 47-49, 53-55, 60-63, 67, and 70-72 are now pending in the application. Applicants respectfully request reexamination and reconsideration of the application.

Invention Disclosure Statement:

An Invention Disclosure Statement is being filed herewith. The Examiner is requested to initial all of the references cited on the PTO/SB/08A form and return it in accordance with MPEP § 609.

Rejection Under 35 USC § 112, First Paragraph:

Claims 47-49, 52-55, 60-63, 67, 70 and 71 were rejected as allegedly failing to comply with the written description requirement. The Examiner has objected to the claim features of "cutting edge" and "slice mark" as being new matter since they allegedly do not appear in the original disclosure. Applicants respectfully traverse the rejection.

The Examiner is respectfully reminded that there is no requirement that the original disclosure provide *literal* support for the terminology used in the claims. "Newly added claim limitations must be supported in the specification through express, *implicit*, or *inherent* disclosure." MPEP 2163(I)(B) (emphasis added). Also see MPEP 2163(III)(A) describing the Examiner's burden when making a rejection for lack of written description support.

The claimed feature of a "cutting edge" is supported by examples within the originally filed specification in numerous places (see, e.g., page 5, lines 3-6; page 9, lines 16-21; page 10, lines 18-23; page 11, lines 12-15; page 20, lines 9-11; and page 29, lines 16-17). As a particular example, and not by way of limitation, FIGS. 2A-2C provide illustration of an embodiment wherein a blade (22) is oriented so that it can "slice (cut) through any non-conductive layer(s) on the surface of the terminal" (page 10, lines 21-23). From at least this example, a person skilled in the art would readily recognize that the original disclosure provides a description of "a blade comprising a cutting edge along a length of the blade" as presently claimed.

The claimed feature of a “slice mark” is also supported by examples within the originally filed specification in numerous places (see, e.g., page 5, lines 7-11; page 9, line 23 – page 10, line 3; and page 31, lines 11-14). As a particular example, and not by way of limitation, the originally filed specification describes how the cutting edge of the blade cleanly cuts through the non-conductive layer on the terminal enabling a good electrical connection. This is in contrast to prior art probes which scrape across the terminal surface “much as a bulldozer scrapes aside a layer of dirt” damaging the surface of the terminal (page 11, line 8 – page 12, line 7). As is known in the art, this damage created by prior art probes is called a “scrub mark.” The interconnection elements described within the original filed specification, in contrast, produce slice marks, as a slicing (as opposed to scrubbing) action is performed. A person of ordinary skill in the art would therefore readily recognize that the original disclosure provides a description of “a slice mark . . . created on the one of the terminals” by “the cutting edge of each blade slicing into a surface of one of the terminals” as presently claimed. Moreover, a person of ordinary skill in the art would further recognize such a slice mark as being distinctly different than a scrub mark produced by a conventional prior art probe.

In light of the above, claims 47-49, 52-55, and 60-70 are adequately supported by the original written description and Applicants request that the Examiner withdraw the rejection.

Rejection In View Of Prior Art:

Claims 47-49, 52-55, 60-63, 67, 70 and 71 were rejected under 35 USC 102(b) as allegedly anticipated by US Patent No. 5,883,519 to Kennedy (hereinafter Kennedy). Applicants respectfully traverse these rejections.

The Patent Office Mischaracterizes Kennedy

The Patent Office states that the blade of Kennedy “will inherently deflect in a motion that is approximately parallel to the length of the blade which is within plus or minus 45 degrees.” This not only mischaracterizes Kennedy, but fails to correspond to the claim features presently recited. The claims recite “the blades deflecting across the terminals in a motion that is within plus or minus forty-five degrees of an axis aligned with the length of the blade.” In contrast, the structure disclosed by Kennedy shows movement (see FIG. 6) of the blade only in an upward and downward direction that is *perpendicular* (not aligned or parallel) to the length of

the blade (71) (col. 7, lines 51-58). Moreover, Kennedy also describes how the blade may bounce on the contact point (col. 10, lines 21-24) making clear that the blade is moved in an upward direction (e.g., referenced to side elevation views in FIG. 5 and FIG. 6) rather than in a direction aligned with the blade edge. FIGS. 7 and 8 show top and bottom views of the deflection device (37a) from which it can be seen that the shape of the deflection device is such that the blade is constrained to move only upward and downward, and cannot appreciably move in other directions. Accordingly, Kennedy fails to disclose movement of a blade “in a motion that is within plus or minus forty-five degrees of an axis aligned with the length of the blade” as claimed. The claims are therefore allowable over Kennedy for at least this reason.

Kennedy Teaches Away from the Present Invention

Kennedy also teaches away from the present invention, stating in his background section that prior art probes “have been provided with a tip which has been moved laterally across the oxide coating ... this movement has also adversely affected the integrated circuit by scratching the particular contact point.” Accordingly, Kennedy teaches the undesirability of a blade “deflecting across the terminals” as is presently claimed. Thus, the claims are also non-obvious over Kennedy for at least this reason.

The Resultant Product Structure is Novel and Non-obvious

The Examiner is also respectfully reminded that claims in the form of product by process are examined in accordance with MPEP § 2113. “The structure *implied* by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art” (MPEP § 2113) (emphasis added). The Patent Office fails to cite any reference disclosing slice marks or any other feature of a slice mark as would be implied by the presently claimed process. Moreover, as noted above, Kennedy teaches away from providing a slicing movement, and therefore clearly does not produce slice marks. As pointed out in previous Amendments (e.g. the Amendments of March 21, 2007 and August 6, 2007) other cited references produce blunt scrub marks rather than slice marks as claimed. Accordingly, the Patent Office has failed to present a prima facie case of anticipation or obviousness of the present claims.

Dependent Claims Add Further Novel Distinctions

The dependent claims recite further additional features not disclosed by the cited references. For example, claims 70 and 71 recite that the blades comprise tapered side walls. This implies that the resulting slice marks on the terminals taper from an opening at the surface of the terminal to the bottom of the slice mark. Such slice marks distinguish the dies of claims 70 and 71 from the art of record, and therefore provide additional reasons for the allowability of these claims.

Rejection Under 35 USC § 112, Second Paragraph:

Claims 47-49, 52-55, 60-63, 67, 70 and 71 were rejected under 35 USC 112, second paragraph, as being indefinite as it is allegedly “unclear what the structural result would be for the semiconductor die” that is tested by the process of the claims. Applicants respectfully traverse the rejection. The Examiner is reminded that compliance with 35 USC 112, second paragraph requires only that the scope of the claim be set forth “with a reasonable degree of clarity and particularity” (see MPEP § 2173.02).

The Patent Office asserts that no structural features are disclosed in the specification and no structural features are presented by the claims. As described above with reference to the rejections under 35 USC § 112, para 1, clear support is provided for the feature of “a slice mark” created on one of the terminals of the semiconductor die. This represents a structural feature of the claimed die.

The Patent Office further asserts that “what structural effects would result ... is not clear” and “how such would lead to a functional change is not clear.” As described above, distinguishing characteristics of the tested die resulting from the above process are the slice marks created on the terminals. Such slice marks are distinct from scrub marks produced by prior art testing methods as detailed above. Die having slice marks on the terminals provide improved functionality over die having conventional scrub marks produced by prior art testing methods. For example, scrub marks can prevent a wire from being bonded to a terminal, can decrease the effective life of the bond between the wire and the terminal, and can weaken a terminal causing the terminal to loosen or even detach from the semiconductor device. For example, see U.S. Patent No. 5,506,499 to Paur (cited in the IDS filed June 21, 2005), col. 2, lines 21-40 and col. 3, lines 7-25. Testing using the recited process, however, results in slice

marks which can reduce the foregoing problems. For example, slicing a blade into the surface of the terminal with a motion within plus or minus forty-five degrees of an axis aligned with the length of the blade can result in a slice mark which causes less damage to the terminal. Accordingly, slice marks are more advantageous than scrub marks.

The Patent Office further asserts that the structural result "appears to be akin to placement of an identifying mark which appears to be a kind of printing." As explained above, the slice mark is a result of the recited process. The slice mark has a functional effect on a wire bonded to the terminal as explained above.

Finally, the Patent Office asserts that it is not clear what is meant by "cutting edge" and "slice mark." These terms are supported by the specification as described above.

The Examiner is respectfully reminded that the claim must be considered as a whole and in light of the content of the application disclosure, the teachings of the prior art, and the claim interpretation that would be given by one of ordinary skill in the art. Here, a person of ordinary skill in the art would readily understand the scope of the claim and therefore the claims set forth the invention with sufficient clarity and particularity. For at least the foregoing reasons, Applicants respectfully assert that all pending claims meet the requirements of 35 USC 112, second paragraph. Therefore, the rejection should be withdrawn.

Conclusion:

In view of the foregoing, Applicants submit that all of the claims are allowable and the application is in condition for allowance. If at any time the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned or Ken Burraston at (801) 426-2100.

Respectfully submitted,

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